

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Hiroki ICHINOSE et al.

Application No.: New U.S. Patent Application

Filed: July 22, 2003

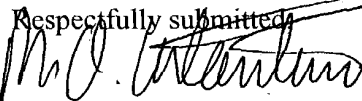
Docket No.: 115744

For: FUEL INJECTION SYSTEM AND CONTROL METHOD FOR INTERNAL
COMBUSTION ENGINE STARTING TIMEINFORMATION DISCLOSURE STATEMENTCommissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Pursuant to 37 CFR §1.56, the attention of the Patent and Trademark Office is hereby directed to the reference(s) listed on the attached PTO-1449. Unless otherwise indicated herein, one copy of each reference is attached. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the reference(s) be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

- ☒ 1. This Information Disclosure Statement is being filed (a) within three months of the U.S. filing date of this non-CPA application, OR (b) before the mailing date of a first Office Action on the merits in the present application. No certification or fee is required.
- ☒ 2. Relevance of the non-English language reference 2 is discussed in the present specification.
- ☒ 3. A concise explanation of the relevance of the non-English language references appears in the Appendix attached hereto.
- ☒ 4. English-language Abstracts of the non-English language references are attached hereto.
- ☒ 5. A computer-generated English translation of the following Japanese Patent Publication has been obtained from the website of the Japanese Patent Office (<http://www.jpo.go.jp>), and is attached, but has not been reviewed for accuracy. See References 2&3.

Respectfully submitted,

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Form PTO-1449 (REV. 8-83)		US Dept. of Commerce PATENT & TRADEMARK OFFICE		ATTY DOCKET NO. 115744		APPLICATION NO. New U.S. Patent Application	
INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)				APPLICANTS Hiroki ICHINOSE et al.			
				FILING DATE July 22, 2003			
U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	
	1	5,836,288	11/17/1998	Nakagawa			
FOREIGN PATENT DOCUMENTS							
		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	
	2	JP A 11-173188 w/ abst & trans	06/29/1999	Japan			
	3	JP A 5-214987 w/ abst & trans	08/24/1993	Japan			
OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)							
EXAMINER					DATE CONSIDERED		
Examiner: Initial if citation considered, whether or not citation is in conformance with M.P.E.P. 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.							

Appendix

List of Related Art for IDS

Our Ref. No.

TFN0030024-US

Client No.

TSN2003-0040-US-00Z

US Patent	File Date	Issue Date	Comments
JP (A) 11-173188	10/12/1997	29/06/1999	In a fuel injection control device of an internal combustion engine, ECU calculates a starting time fuel amount according to an engine water temperature, in the process from the first explosion to the final explosion of the engine, and at the same time, it corrects the starting time fuel amount to the increasing side, as the engine rotation frequency is the lower. In such a fuel amount correction, the correcting amount (the rotation correcting coefficient) is increased or decreased according to the increasing degree of the engine rotation frequency at each time. The rotation correcting coefficient is increased or decreased according to the water temperature. Consequently, even though in the case engine friction becomes larger at the engine starting time in a very low temperature, for example, when the engine rotation increasing level at the engine starting time fluctuates, the required fuel amount according to the friction can be injected and fed, so as to obtain a desired output torque constantly.
JP (A) 05-214987	31/01/1992	24/08/1993	It is disclosed that fuel is gradually increased and an unsatisfactory start due to the fogging of a plug is prevented when an internal combustion engine is started. However, it is not disclosed what amount of fuel injection to each cylinder at one cycle fuel injection is injected.
US(A) 5,836,288	16/07/1997	17/11/1998	An apparatus and method for controlling fuel injection in a multi-cylinder internal combustion engine to prevent discharge of unburned HC and purify the exhaust gas at the engine start-up is disclosed. In the apparatus an amount of fuel injection at the engine start-up is calculated by engine rotation speed, a water temperature and battery voltage.